



MANUFACTURING EXTENSION
PARTNERSHIP
NATIONAL ADVISORY BOARD
ANNUAL REPORT 2001

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LETTER FROM MEP

2001 began with high hopes: the Y2K crisis had passed, a new president took office with all the expectations and promises of a new administration, and the economy—despite signs of slowing—remained strong. Who could have anticipated then the challenges this country would face over the coming year, and how its people would come together in the face of adversity?

The downturn in the economy and the tragic events of September 11 combined to deliver a series of blows to the country's economy. Many businesses were forced to lay off hundreds, if not thousands of workers to stay afloat, and many simply closed their doors. The manufacturing industry has been one of the hardest hit, and MEP's mission has become all the more relevant.

It is during crises that the efforts of MEP pay off for small and mid-sized manufacturers. Quality and process improvements, which together comprised 35 percent of MEP's assistance projects this year, make manufacturers more competitive by eliminating waste and excess expenditure from their processes while improving products and services. Of the 21,000 manufacturers served by MEP network centers in fiscal year 2001, 25 percent employ less than 20 people. This number indicates that MEP's outreach efforts are finding the companies that struggle the most to survive, and they are responding with requests for technical assistance (62 percent), training (26 percent), and assessment (12 percent).

With an increasing number of clients using MEP's guidance comes an increased impact. This year, MEP's assistance resulted in a total of \$2.3 billion in increased and retained sales. MEP's process improvement programs resulted in a total cost savings of \$481.9 million for manufacturers. In a

year when the rate of layoffs made headlines across the country, small and mid-sized manufacturers participating in MEP's programs created and retained 25,574 jobs.

MEP clearly has a role to play in helping a beleaguered America reestablish its strong economy. MEP continues to offer assistance and education to the up and coming manufacturers across the nation, helping them become sustainable, growing, profitable businesses. MEP's programs offer manufacturers the means to grow in good times, and stay financially healthy and profitable in hard times. They are the frontlines of America's future business powerhouses, and it continues to be our role to support and guide them towards success.

Edward J. Noha



Ed Noha, Chairman
National Advisory Board



Kevin Carr, Director
Manufacturing Extension Partnership

MEP MISSION

Small and mid-sized manufacturers—defined as firms employing less than 500 people—account for more than half the total value of U.S. production. These firms employ nearly 12 million individuals, or two-thirds of the entire U.S. manufacturing work force. Their integral role as supply chain participants who provide components to large U.S.-based manufacturers makes them a critical factor in the competitiveness of the manufacturing sector and to the U.S. economy as a whole. They are a staple of rural employment. They are also the first to be affected in an economic downturn, and have the most difficulty recovering.

MEP's mission is to strengthen the global competitiveness of U.S.-based manufacturing by providing information, decision support, and implementation assistance to smaller manufacturing firms in adopting new, more advanced manufacturing technologies, techniques, and business best practices. Providing the resources for these small and mid-sized manufacturers gives them the opportunity to optimize an economic boon and weather the storms of recession, market fluctuation, and the myriad other forces to which small business are subjected. MEP's network affiliates employ over 2,000 field engineers and manufacturing specialists who help firms make changes that lead to greater productivity, increased profits, and enhanced global competitiveness.

The MEP network of not-for-profit centers serves all 50 states and Puerto Rico, linked together through the Department of Commerce's National Institute of Standards and Technology. Manufacturers have at their disposal the vast pool of knowledge and resources of the business specialists and manufacturing experts around the country that are affiliated with these centers. Each center has the available expertise to assess the current state of a company, to provide technical and business solutions, to help create successful partnerships, and to offer continued education and training for continuous improvement.

Through the centers, small and mid-sized manufacturers have unique access to national resources, funneled through a local nexus that understands their particular geography, markets, and partner network. centers bridge the market gap by bringing together companies with the people and programs they need to push their businesses to the next level of success. center staffs are trained to analyze business scenarios on the client site, providing hands-on, real-time assistance or bringing in the necessary experts to provide these services. centers focus on project implementation in: lean manufacturing, business management, quality management and improvement systems, materials engineering, product development, and energy and environmental issues, to name just a few offerings available to manufacturers nationwide. Centers

have unparalleled access to government organizations at the federal, state, and local levels. Centers offer networking opportunities by bringing together industry or manufacturing area consortiums, providing the opportunity for companies to learn from each other. Most importantly, center staffs are veterans in the manufacturing industry, offering first-hand knowledge and experienced insight into the challenges manufacturers face on a daily basis.

MEP's vision through 2004 encompasses the organization's goal to become a name synonymous with excellence. MEP wishes to become the premier conduit for information, decision support, and implementation assistance, known for working to create world-class, globally competitive small and mid-sized manufacturers. The organization is now standing on the threshold of an ideological shift, from solving yesterday's problems to positioning U.S. manufacturers for a high-growth future. This transition requires MEP to have the most comprehensive knowledge of competitive factors for any industry of any size, and possess a holistic understanding of the high-performance transformation process. Field staff must have a high level of expertise in assessment, information access, solution development, and sales.

However, MEP does not plan to remain simply a knowledge base. MEP is developing new sets of tools and products that help field staff deliver complete business services to their clients, and will make all collective resources available through an integrated knowledge network. With the tactical implementations of its strategic vision in place, small and mid-sized manufacturers will feel the true impacts of increased productivity, increased market share, and increased real wages as they embrace MEP's outlook into the beginning of the century.

MEPNAB: AN OVERVIEW

In 1996, the Secretary of Commerce established the Manufacturing Extension Partnership National Advisory Board (MEPNAB) of the National Institute of Standards and Technology (NIST). The Board provides advice on MEP's programs, plans, and policies; assesses the soundness of MEP plans and policies; evaluates current performance against MEP program plans; and functions in an advisory capacity.

MEPNAB consists of nine members with background in industrial extension. All are appointed by the Director of NIST to serve three-year terms. This year, two new members joined the Board: Dan Marcum, Managing Partner, Marcum Capital, and John Yngve, Chairman, Bondhus Corporation.

The Board is required to hold three business meetings a year with representatives from NIST MEP management, who actively participate in the Board's meetings. These meetings allow MEP staff the opportunity to

report on the progress of MEP's major initiatives and the program's impact on our nation's more than 361,000 small manufacturers. MEPNAB meetings also provide a forum for NIST MEP representatives to update the Board on the status of MEP's budget and internal operational issues. Other meetings may be called during the year, as deemed necessary by the Board Chair or at least one-third of the members.

In addition, the Board is required to summarize its findings each year in an annual report that is submitted to the Director of NIST and transmitted to the Secretary of Commerce. The report covers the Board's discussion of issues that affect MEP and its nationwide network of centers. The present annual report covers MEPNAB meetings held in January and May 2001. The third meeting, originally scheduled for September 17, 2001, was cancelled due to the tragic events of September 11, 2001.

BOARD MEMBERS

The MEPNAB Board consists of nine members with expertise in industrial extension who are appointed by the Director of NIST to serve three-year terms. The members bring a variety of manufacturing and manufacturing related backgrounds to the Board. Their experience and expertise includes in-depth representation of small and large manufacturing, labor, academia, trade association, economic development, consulting and state government. This mix brings to MEP the outside advice critical to maintain and enhance the program's focus on the customer—America's small manufacturers.

RONALD AUGER

President/CEO

American Industrial Casting, Inc.
East Greenwich, Rhode Island



Mr. Auger has over 35 years of managerial and production facilities experience. In 1999, the U.S. Small Business Administration (SBA) recognized him as the Rhode Island Small Business Person of the Year. In addition to serving on SBA's Regulatory Fairness Board, Mr. Auger serves as Board Chair for the Rhode Island Manufacturing Extension Services.

In 1993-1996, Mr. Auger served on the Metal Casting Advisory Board for the Department of Energy and on the Rhode Island Governor's Defense Conversion Advisory Board. He was designated the 1993 honoree of the U.S. Chamber of Commerce's Blue Chip Enterprise Award and the 1996 honoree of the John J. Touhy Award, the City of Cranston's award to an outstanding business and civic-minded person. Mr. Auger's additional service includes participating in a trade mission to Estonia and a Good Will Mission to Guatemala and Panama, as well as serving as a review panelist for NIST MEP.

RICHARD BENDIS

President & CEO

Kansas Technology Enterprise
Corporation (KTEC)
Topeka, Kansas



Mr. Bendis has been a successful entrepreneur, corporate executive, venture capitalist, investment banker, and consultant in the technology and healthcare industries. He has been involved with KTEC since its creation, where he designed and implemented the Kansas Innovation and Commercialization Network. Mr. Bendis serves on numerous public/private boards and committees, including the White House U.S. Innovation Partnership Advisory Task Force Steering Committee and co-chair of the SBIR Committee, the National Governor's Association Science and Technology Council, the State Science and Technology Institute Board of Directors, the Council on Competitiveness, and the National Association of State Venture Funds Board of Directors.

MARÍA ESTELA DE RÍOS

Vice-President of Corporate Affairs
Orion International
Technologies, Inc.
Albuquerque, New Mexico



Ms. de Rios has over 25 years of experience in general business and in government and commercial contracting. Currently she is executive vice president of Orion International Technologies, which is a research and development engineering company specializing in nuclear and environmental engineering services, advanced technologies, and data and control systems. She currently sits on the Governor's Business Advisory Council and the Board of Directors for the Industry Network Corporation, the local MEP center in New Mexico.

She is recognized as knowledgeable in the areas of economic development and international trade for the state of New Mexico. As such, she is a frequent speaker at forums and seminars. She has also served in leadership positions on the boards of major community- and business-related organizations since 1972.

KELLIE DODSON

President
ACE Clearwater Enterprises
Torrance, CA



Ms. Dodson joined ACE Clearwater Enterprises, a family business, in 1983, taking over operations in 1985. By 1995, she had doubled annual sales, positioning ACE as the preferred supplier for several prime original equipment manufacturers and the full-service manufacturing facility of choice for Lockheed Martin, General Electric, Allied Signal, Bell/Textron, and other primes.

Under Ms. Dodson's leadership, ACE has been featured in two business books, *Transformational Learning* and *The Knowledge Enabled Corporation*. In addition to her professional work, Ms. Dodson served as Board Chair for the California Manufacturing Technology Center in 1995, and remains an active Board member and Technical Advisory Council Member for that organization. She also sits on the Board for The Gateway Cities partnership and the Technical Advisory Board for City National Bank.

IRWIN FELLER

Director, Institute for Policy
Research and Evaluation,
Professor of Economics,
The Pennsylvania State University



Dr. Feller, director, Institute for Policy and Research and Evaluation at the Pennsylvania State University, has extensive experience in policy research and evaluation. Dr. Feller's research has included the economic and political aspects of state technology development programs, the evaluation of these programs and the roles of universities in national and regional economic development. He has served as consultant to a number of organizations including the White House Office of Science and Technology Policy, the National Governors' Association, and the National Conference of State Legislatures. In 1996, Dr. Feller was appointed as an American Society of Mechanical Engineers (ASME) International, State Government Fellow in Pennsylvania.

DEAN J. GARRITSON

Vice President, Small & Medium
Manufacturers Department,
Policy & Public Affairs Division,
National Association of Manufacturers
(NAM)



As Vice President of Small & Medium Manufacturers (SMM) for the Policy and Public Affairs Division, Mr. Garritson is responsible for SMM legislative policy and serves as the key staff spokesperson for SMM issues.

Previously, Mr. Garritson was the Vice President and Division Manager of the National Division in NAM's Greenbelt, Maryland office. During his tenure there, he more than tripled membership sales to small and medium manufacturers and doubled the number of small manufacturers who serve as members of NAM's Board.

Mr. Garritson is the Chairman of the International Association of Membership and Marketing Executives. In addition to serving on the MEPNAB Board, he is a board member for The Institute for Organization Management, the center for Work-force Success, and the City Club of Washington.

DAN J. MARCUM
Founder and Managing Partner
of Marcum Capital



Dan J. Marcum is the Founder and Managing Partner of Marcum Capital, a private merchant banking firm specializing in raising capital for emerging technology-oriented companies and nurturing the growth and development of these companies via a private business incubator based in Tullahoma, Tennessee.

Prior to forming Marcum Capital, Mr. Marcum was Chairman of the Board of Allied Aerospace Industries, Inc., the parent company of Micro Craft, Inc. of Tullahoma, TN, Dynamic Engineering of Newport News, VA, and GASL of Long Island, NY. Mr. Marcum joined Micro Craft, Inc. in 1972 and helped lead its growth from one operation with about 30 employees to 12 operations throughout North America with more than 600 employees. He helped lead the transformation of Micro Craft from a regional machine shop to an industry leader in aerodynamic, propulsion, and space flight research and development with annual revenue exceeding \$70 million.

EDWARD NOHA
Chairman of the Board
CNA Financial Corporation
Chicago, Illinois



Prior to his current position, Mr. Noha served as chairman of the board and chief executive officer of the CNA Insurance Companies. Under his leadership, CNA rose to become one of the strongest and largest multi-line insurance organizations in the U.S.

In 1992, Mr. Noha was appointed chairman of the Chicago Economic Development Commission by Mayor Richard M. Daley. In this role, he established the primary goal of job retention and expansion leading to over 20,000 jobs in the last three years.

He also organized the proposal for the Chicago Manufacturing Center, one of the local MEP centers in Illinois. He is currently the Chairman of the MEPNAB.

JOHN A. YNGVE
Chairman of the Board
Cinnatus



Mr. Yngve has more than twenty-five years of management experience in manufacturing industries.

Presently, Mr. Yngve is serving as Chairman of Bondhus Corporation, a tool manufacturer in Monticello, Minnesota. He has served as chair of Minnesota Technology, Inc. since 1991.

Mr. Yngve was president and chairman of Nortronics Company, an electronics manufacturer. He has served as an officer or member on the board of the Minnesota Council, national board of the American Electronics Association, Minnesota High Technology Council, Metropolitan Transit Commission, Citizens League, Plymouth, MN City Council, Board of Regents of the University of Minnesota, University of Minnesota Foundation, and the University of Minnesota Institute of Technology Advisory Council. He has also served as a State Representative in the Minnesota Legislature.

Mr. Yngve received a law degree from the University of Minnesota.

CENTER UPDATES AND IMPACTS

The centers that comprise the MEP network are the embodiment of MEP's principles. They provide the local knowledge, contacts, and manpower that are so critical to the MEP mission. Through these centers, small manufacturers in even the most remote areas of the country can receive quality assistance and gain access to national resources. As of December 2001, there were over 400 locations in the MEP network, providing services in all 50 states and Puerto Rico. Since the program's inception, small manufacturers have utilized MEP's centers nationwide over 128,000 times. In 2000, MEP centers assisted over 23,000 manufacturers in areas including business systems, human resource management, process improvement, and market development.

In the last quarter of fiscal year 2000, MEP held competitions in two regions of the U.S. that had not previously received federal funding for service delivery: Indiana and Southeast Ohio.

In fiscal year 2000, the MEP program established very aggressive Government Performance and Results Act (GPRA) goals. MEP decided to prioritize new sales impact, with a goal of \$670.3 million; cost savings, with a goal of \$545.4 million; and capital investment, with a goal of \$863 million. In early 2001, MEP conducted a survey of first quarter activities in fiscal year 2000, which indicated MEP has reached at least 30 percent of the goals for sales increases and capital investment,

and 24 percent of the goal for cost savings. The survey also pointed to several results that can be directly attributed to delivered services:

- 60 percent of clients surveyed reported increases in productivity.
- Two-thirds of clients improved their competitiveness.
- 80 percent of clients reported a bottom-line impact on their companies.

In May MEP introduced a new set of minimum quantitative metrics, which are designed to improve the effectiveness of the centers and standardize those carrying the brand. Introduced at the spring Center Director roundtable meetings, the metrics became effective January 1, 2002. Thus far, Center response has been positive. As of December 2001, 79 percent of the centers met or exceeded the minimum quantitative measures, which are as follows:

MEASURES	MINIMALLY ACCEPTABLE IMPACT MEASURES
Bottom Line	\$2.00
Client Impact	
Investment	
Leverage Ratio	\$2.30
Customer	
Satisfaction Score	4.1
Survey	
Response Rate	60%
Cost per	
Impacted Client	\$43,500

Other Updates:

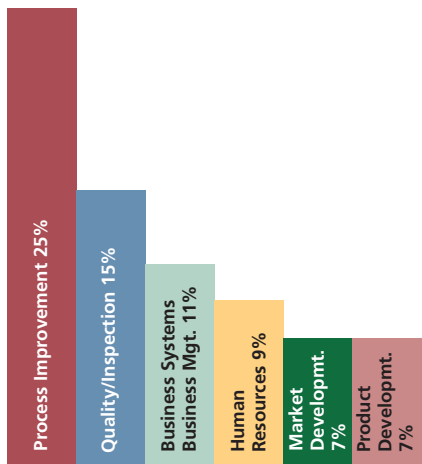
- In the second quarter of 2001, MEP held a competition in five states: Alaska, Hawaii, Nevada, New Mexico, and Arizona. Awards were received in September 2001.
- The annual MEP National Conference was held November 4-7, 2001 in Cincinnati, Ohio. All the MEP centers sent representatives to attend the national conference, participate in technical breakout sessions, and network with each other.
- MEP has received a positive response to the 360vu branding activities. As of December 2001, 52 centers have submitted Letters of Intent to participate in the brand. PBA training poses a challenge for many, but 49 of the centers have at least one PBA enrolled in training. By December 2001, MEP had 143 individuals enrolled in PBA training.

2001 IMPACT DATA

FISCAL YEAR 2001 MEP ACTIVITIES

The MEP program delivers measurable returns to its clients. The national network of MEP centers is an important asset in growing the economy and helping U.S. manufacturing remain globally competitive by fashioning solutions that are appropriate to each firm. The services provided are contributing to improving the performance of the manufacturing sector and increasing the competitiveness, boosting the productivity and generating bottom line benefits for these firms. These services are also leveraging new private sector investment that is important to the company competitiveness and the regional economies served. Finally, these services benefit local residents by generating new jobs and retaining jobs that otherwise would have been lost.

TOP SEVEN AREAS OF ASSISTANCE



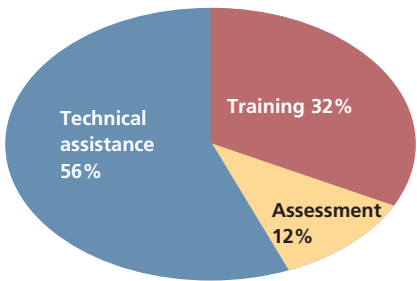
MEP CLIENT-REPORTED IMPACTS

Competitiveness Indicators

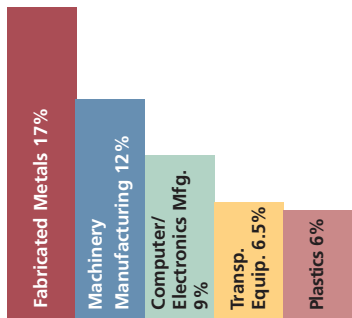
Client-reported impacts as a direct result of MEP assistance:

Increased/Retained Sales	2.3 billion
New Sales	698.40 million
Retained Sales	1.58 billion
Cost Savings	481.9 million
New Client Investment in Modernization	873.1 million
Jobs Created	9,058
Jobs Retained	16,266

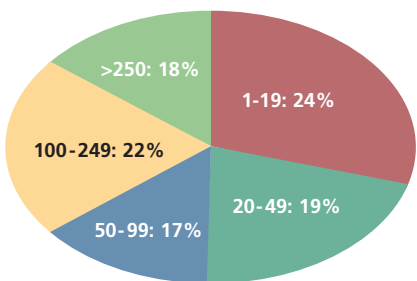
HOW WE ASSISTED FIRMS



TOP FIVE INDUSTRIES SERVED



SIZE OF FIRMS SERVED BY NUMBER OF EMPLOYEES



Over 149,000 Manufacturers Served through FY 2001.

MEP STRATEGY UPDATE

At the May meeting, MEP updated the Board on the status of MEP's strategic direction, activities, and developments since the beginning of the year and focused specifically on the 360vu branding initiative.

MEP began by focusing on building the system and putting its components into place, moving through the mid-level stages of organizational maturity in which evaluation criteria were put into place and resources were stabilized. At this point in its development, MEP is focused on integrating the system and optimizing the performance of its individual constituent centers.

MEP has been charged by Congress to "...enhance productivity and technological performance in United States manufacturing...". In the beginning, most of MEP's efforts focused on stabilizing its clients. Now the organization has set itself on the path toward leading-edge work in assisting small manufacturing enterprises become world-class, delivering high value goods and services.

While Congress has mandated MEP's vision for its clients, MEP's vision as an organization is to reposition its role in the manufacturing sector in such a way that by 2004 the organization's name will be recognized as *the source* for products and services that create world-class operations. MEP's products and services help manufacturers apply a holistic understanding of high-performance transformation processes, positioning them for a high-growth future. MEP strives to become the premier conduit for information, decision support, and implementation assistance. As the vision becomes the reality, the market will feel its impact in increased productivity, increased market share, and increased real wages.

The board was told that in order to attain this vision, MEP has designed a strategy to transform its individual component centers into a system of high-performance distribution centers utilizing an integrated knowledge network. By undertaking this strategic direction, MEP has set itself the challenge of wrestling with issues of national capacity, uniformity, and integration. While still in a transitional period, MEP is already seeing very strong increases in impacts. This is due in small part to a recently implemented change in the metrics reported and their methodology but for the most part true impact increases are evident.

The Board pointed out the inherent challenge in using activity-based impacts as a basis for developing the new model without compromising delivery within the present system, and urged MEP to note from the outset the standard survey issues of bias and measurement error in evaluating true impact. The Board requested a deeper level of strategic analysis from MEP in the future, including tracking impacts by region and the characteristics of the kinds of firms reporting the increases.

MANUFACTURING IN THE 21ST CENTURY

The Board conducted a working session on the topic “Manufacturing in the 21st Century” at its January 2001 meeting. An overview of the National Association of Manufacturers’ view of manufacturing was presented to the board including areas of critical importance to SMEs and economic projections covering a two-year time horizon.

The manufacturing industry’s share of the Gross Domestic Product (GDP) over the past 40 to 50 years has hovered at 22 percent. It is predicted to maintain an average of 20 to 22 percent of the GDP. However, nearly 247,000 manufacturing jobs were lost in the last two quarters of 2000, despite economists’ predictions of a three percent growth in the economy. Jobs for unskilled laborers are increasingly being exported while productivity is high, due to the division between “old economy” and “new economy.” The demand for high-skilled, high-wage labor continues to increase, creating a labor shortage that is expected to continue over the next 10 years.

The U.S. will continue to follow the current trend of employing new technology in production applications, and MEP’s role is to ensure that trend is applied at the small and mid-sized manufacturing level. The 1990’s saw a sharp rise in productivity, with absorbed costs leading to low inflation. Unfortunately, macroeconomic data suggest that energy prices were the primary driver of cost in 2000—with natural gas costs up 140 to 150 percent—and economists believe that manufacturers shifted labor accordingly. In 2000, increased energy costs of approximately \$115 billion shifted money away from the manufacturing sector, resulting in a \$32 billion capital shortfall. Manufacturers are increasingly exposed to higher energy costs, and constraining capacity issues virtually guarantee the problem will remain a long-term issue.

In addition to the reduction of capital caused by higher energy costs, economists are predicting a 14 percent decrease in profit margins in the coming year. For as many plants that try to offset the effects of the economic downturn through diversification, an equal number of plants close their doors. The survivors face a dramatic reduction in orders caused by inventory build-up and lack of demand. At the

same time, they combat a sharp increase in costs, especially in rising double-digit health care costs.

The progress of two specific industry-wide applications were also addressed: *eBusiness* and supply chain management. The *eBusiness* marketplace is and will remain chaotic until a dominant platform emerges. The market will further stabilize as companies reach partnership agreements to form virtual companies, joining together to achieve objectives that remain out of reach as individual entities. In difficult economic times, supply chain management trends toward multiple sourcing to divert potential weaknesses in the supply chain. As a result, the market tends to put less emphasis on quality certification—manufacturers are concerned with reliable product delivery rather than ideal quality standards.

After painting a picture of the economic outlook, The Board was led through an analysis and discussion of the implications of an economic downturn for the MEP centers. Centers now face a shrinking market, clients that may be unable to pay for services, and difficulty convincing potential clients to spend some of their reduced profits on projects. It is critical for the centers to be proactive as the economy begins to decline by reducing costs, increasing sales, and taking a multi-level approach to service delivery models.

Critical to the continued well-being of the centers is their ability to identify current market drivers and focus services on addressing those issues. Lean manufacturing product lines are an excellent example of simple products that address immediate client need and demonstrate immediate Return on Investment. Eighty percent of small manufacturers are still trying to solve basic problems, but lack the internal resources to do so. MEP's greatest

impact will come from solving foundation level problems for the manufacturers.

In the overall analysis, MEP centers need to begin planning their strategies for maximizing performance and financial viability in an increasingly challenging market. Centers should expect a reduction in earned income, and a decrease in certification sales. The new emphasis should be on sales and marketing activities, including the implementation of a unified brand and training in sales and marketing techniques for all center staffs. Sales incentives should be modified at all centers so that sales count in all sectors, particularly for field engineers. Should these predictions prove incorrect, centers will have to dramatically improve their sales and marketing abilities.

The Board affirmed the potential value of this macroscopic view of the projected economic situation to the centers. This information provides opportunities for centers to work with manufacturers on cost savings related to energy, focus on business management strategies, and draw special attention to areas of cost pressure. The Board requested that the overview be converted into an editorial to be distributed to all center directors, and agreed that an economic update should be included at future quarterly meetings. The Board also resolved to hold a special session devoted to sales and marketing issues across the MEP system, which occurred at the May 10 meeting.

LEAN MANUFACTURING

Lean manufacturing is a systematic approach to analyzing design, flow of material, and information with the goal of eliminating waste, while striving for perfection in manufacturing operations. To support that goal, MEP has worked to develop a training and certification course for manufacturing specialists who, once trained, would be capable of helping client companies transform themselves into lean enterprises.

At the January meeting, MEP announced that it has nearly reached its participation goal for the centers, as close to 100 percent of the centers have participated in Lean Enterprise Training. At that time, over 2,100 individuals from both center staffs and their small manufacturing clients had participated in training. At subsequent board meetings, the Board learned that an additional one hundred individuals* received Lean training certification and are now qualified to deliver training to small manufacturing clients. The increasing number of individuals becoming certified to deliver Lean training is an indicator of the popularity of Lean Manufacturing principles in the market. The growing need for qualified trainers reflects the success of MEP programs such as Principles of Lean Manufacturing, Value Stream Mapping, 5S Systems, Setup Reduction, Cellular/Flow Manufacturing, and Total Productive Maintenance.

In May, MEP proudly reported that the 5S program, originally launched in December 2000, had over 200 center staff attend training. MEP also announced the addition of seven new or revised Lean Enterprise courses, due to be released under the 360vu brand. The courses include a new Spanish language version of the highly successful *Principles of Lean Manufacturing* (LE101); *Value Stream Mapping* (LE202); *5S System* (LE203); *Setup Reduction* (LE204); *Cellular/Flow Manufacturing* (LE205); *Pull/Kanban Systems* (LE206); and *Total Productive Maintenance* (LE207). A new Lean Enterprise Methodology course (LE201) is also being developed. LE 201 will use a two-hour Webcast to guide lean practitioners through the stages and phases needed to plan and implement the Lean Enterprise Methodology as part of the enterprise wide 360vu business approach. The LE201 Webcast will also feature information on a multi-tiered approach to conducting a Lean Diagnostic with a client firm.

As a follow-up to the May meeting, MEP announced that as of September 2001, 300 center staff attended 5S System training and over 200 center staff attended the 5S “Train the Trainer” course. Content for the Cellular/Flow Manufacturing course is now revised. The course is slated for release in January 2002, pending its conversion to the 360vu brand.

Following is a list and description of all Lean courses:

PRINCIPLES OF LEAN MANUFACTURING LE101 - ONE-DAY WORKSHOP

At this workshop participants learn the principals of Lean Manufacturing and how to apply them. During the simulation exercises—as members of the production team for “Buzz Electronics”—clients apply Lean concepts such as standardized work, visual signals, batchsize reduction, pull systems, and more. Students experience firsthand how Lean improves quality, reduces cycle time, improves delivery performance, reduces work-in-process (WIP), and enables Buzz to show a profit.

**VALUE STREAM MAPPING
LE202 - ONE-DAY WORKSHOP**

During this workshop participants use the powerful Value Stream Mapping (VSM) tool to create a current state map for Acme Stamping, a real-world firm featured in a detailed case study. Students use VSM icons and learn the common language of Lean as they draw a current state map for Acme, analyze Acme's current state, find the non-value added activities, and then draw a future state map for Acme that eliminates those activities. Finally participants develop a plan for attacking and eliminating those non-value added activities.

**THE 5S SYSTEM
LE203 - ONE-DAY WORKSHOP**

This workshop offers an opportunity to experience first hand how the 5S System reduces waste in the mounting plate assembly area of a simulated production facility. Participants learn the concepts of the 5S System and apply them to transform a cluttered, disorganized production area into a clean, organized, and orderly workplace.

**QUICK CHANGEOVER/
SETUP REDUCTION**

LE204 - ONE-DAY WORKSHOP

This workshop teaches the principles of Setup Reduction and the Single Minute Exchange of Dies (SMED) system. Students apply the four-step Changeover Improvement Process to achieve Setup Reduction in a lifelike simulation exercise. The class demonstrates how these systems reduce costs and setup times and increase machine capacity.

**CELLULAR/FLOW MANUFACTURING
LE205 - ONE-DAY WORKSHOP**

After learning the concepts of Cellular/Flow Manufacturing, students help transform a simulated traditional batch production area to a cellular layout—and see the dramatic changes in the way the product flows, so that customer demand is met—on time, every time.

**PULL/KANBAN SYSTEMS
LE206 - ONE-DAY WORKSHOP**

Explore the process of designing and implementing Pull/Kanban Systems through classroom instruction and hands-on production simulations in this fascinating workshop. This course introduces participants to the principles of Pull Kanban/Systems, applies them in a life-like simulation, and demonstrates how they can be applied to a variety of manufacturing situations.

**TOTAL PRODUCTIVE MAINTENANCE
LE207 - 6 HOUR WORKSHOP**

Participants learn about Overall Equipment Effectiveness (OEE) and how it is related to capacity. They learn how to apply 5S techniques on equipment and see the tenfold effect they have. Topics include the 6 major equipment-related losses and how to find and eliminate them; causes of 75 percent of equipment breakdowns and the application of DEE techniques to dramatically improve uptime and increase equipment effectiveness.

**Number is an estimate. An individual attending multiple courses is counted multiple times.*

STATE RELATIONS

STATE ROUNDTABLES

MEP maintains, as a statement of its core values, that it will always act in alignment with state strategies and policies in manufacturing concerns. In the spirit of this resolution, MEP held a series of roundtables—five in all—around the country in December 2000 and January 2001. Fifty-five state partners representing thirty two states participated and shared their perspectives.

The roundtables spurred valuable dialogue on MEP's strategic direction and steps the state partners believe MEP should take in the future. Among the topics discussed, several areas of common interest emerged:

- The shortage of highly skilled workers continues to present challenges to local industries. All the investors stressed the need to improve existing jobs and businesses within their communities to encourage workforce transformation.
- Investors feel that the university systems within the states can be increasingly leveraged to play a larger role in economic development.
- The entire country faces the issue of the "digital divide." While large urban areas reap great benefits from new technologies and technological infrastructure, rural areas continue to lag behind. The absence of developing technologies has a severe negative impact on rural economic development.
- All investors are interested in attracting increased capital into the states.
- Investors face common difficulties inherent in state efforts to synthesize resources at the local level when federal resources tend to compartmentalize those resources.
- Local manufacturers need to be encouraged to pursue innovation in both products and processes to become more competitive and profitable.
- The rapid rise of a global economy makes gaining access to international markets a key priority for state investors.
- There is a movement toward "clustering" enterprises to build on the states' critical technology masses.
- Most investors see value in converting technical assets into economic development assets.
- Many investors perceived manufacturing as "old economy." Most states geared their long-term strategic goals towards "new economy" developments, including increased activity in information technology (IT) development. The investors tend to disassociate IT activity with manufacturing and industry.
- The current ownership of SMEs is aging, and succession issues present some uncertainty to the continued success of the MEP initiatives.

A white paper has been written on the issues discussed at the roundtables by the State Science and Technology Institute and the Center for Regional Economic Competitiveness. The paper addresses the needs of states and how MEP can meet those needs.

These common topics carried the discussion forward to state/state interactions, highlighting the close alignment of MEP and the states. The state roundtables are a valuable part of MEP's efforts to establish direct lines of communications between NIST and the states. MEP's resources are now actively focused on managing state relations as an ongoing effort in pursuit of stronger, more stable state investors.

Communicating with state stakeholders has become increasingly important. In addition to convening more roundtables this year, NIST is planning to publish an electronic newsletter for state stakeholders to be distributed at least quarterly. NIST is also developing the state relations rapid response team.

STATE PARTNERSHIPS IN 2001

At its January meeting, the Board heard MEP's plans and goals for 2001. MEP set a priority on strengthening state relations by identifying the appropriate partners within the state, be it program partner, policy partner, or anyone who can affect the state's strategy. The partnership approach serves to increase awareness of the MEP mission and goals, increase stability of state funding, improve the center's ability to operate more efficiently and effectively, and increase MEP's ability to have a broader impact on the manufacturing community and overall economy.

Center funding is, on the whole, distributed evenly between federal funding, state funding, and center revenue generation. However, the state portion of the centers' budgets is volatile, and no center is safe from state funding reductions, or losing its state funding altogether.

MEP's goal is to strengthen MEP/state relationships and provide guidance to improve center/state relationships with the intention of integrating centers into state strategies and helping centers stabilize and increase state funding. Some examples of MEP's

tactical implementation of its overall strategy are developing Roundtable and Forum feedback, convening a State Advisory Team, performing case studies, and developing tools and services. In addition, MEP communicates with state stakeholders through its Account Managers and the MEP Stakeholder Roundtables. MEP also informed the Board of a new quarterly communications initiative, currently under development.

MEP also presented the results of its MEP Roundtable to the Board at this meeting. Feedback was broken into two categories: statewide issues and MEP center issues:

Statewide Issues

- Workforce priorities
- Rural development
- Manufacturing in the new economy
- State budget crises
- Integrating state/federal programs
- University involvement in economic development
- Retention versus attraction shift
- Developing the technology infrastructure

Center Specific Issues

- Communication
- Integration of programs
- Visibility and consistency of services across the state
- Uncertainty about the financial future
- National focus versus local focus
- Branded versus non-branded identity
- Holistic integration versus point services

NATIONAL MARKETING EFFORTS

All national marketing efforts are currently focused on the development and launch of the 360vu brand. The branding initiative began in 1998 in response to results from a survey conducted by Stone & Associates that found MEP lacked a strong brand and name recognition in the marketplace. The research also pointed to confusion about center identity in the marketplace, stemming from mixed marketing messages. In response, MEP began working with a branding expert in late 1998 and through 1999 to develop a system-wide identity and brand roll-out, both to the centers and to the national network as a whole. In 2000, MEP worked to establish the brand vision, mission, and values, and began implementation in September 2000 to develop key steps in marketing the new brand.

Planning and implementation of the brand launch is now well underway. Plans for an internal launch to educate and motivate MEP staff on the brand and their role in its development and deployment began in January 2001. The Board heard about the development of the strategic and operational marketing plan to launch the brand to the public, which includes advertising, public relations, direct mail, website development and other electronic marketing, trade shows, collateral development, national

and regional events, and more. The work on design guidelines, visual vocabulary, and templates for use of the mark in national as well as center collateral materials is progressing on schedule.

MEP prioritized the development of a national market research plan to monitor and assess trends, needs, challenges, and opportunities for SMEs. At the May board meeting, the Board learned that MEP was developing a national market research plan. MEP established a plan for collecting, analyzing, and disseminating immediate data from existing sources and set up systems for generating new market research data in support of the 360vu brand, sales strategies, market intelligence, and product development.

The Board learned about MEP's numerous outreach activities and events designed to disseminate information and training to internal staff, center managers and staff, and other stakeholders. The Brand Ambassador program, a more in-depth training initiative, led staff through a series of four formal steps to further their understanding of 360vu, training them to become "brand ambassadors" by November 2001.

After extensive market testing, MEP finalized brand designs, advertising, and message in preparation for launch. 360vu officially launched at the November 2001 MEP National Conference. Activities included an exhibit hall booth, general plenary sessions, and interactive kiosks placed around the convention site. Follow-up activities included the distribution of the first MEP network 360vu newsletter on brand activities and progress, and expansion of the 360vu section of the MEP extranet site to provide a continuously updated source of brand information for all users.

BRAND VISION: Small manufacturers are a critical cornerstone of America's future economic growth.

BRAND MISSION: Enable small manufacturers throughout America to be the recognized world leaders in efficiency, technology, and growth.

BRAND VALUES: Resourceful, knowledgeable, insightful, confident, and passionate.

MOVING FROM POINT SOLUTIONS TO TRANSFORMATION SERVICES

The Board heard a presentation from MEP on efforts to increase center portfolios of services to include systematic transformation services specifically designed to help firms move to high-performance and world-class status at its January meeting. These services are designed to combine with point and system solutions the centers currently offer, to produce a holistic approach to business management that will better help manufacturers in the future.

MEP's branding initiative, 360vu, is developing transformation services designed to identify participating centers as business advisors of choice, bestowing on the centers the ability to deliver a national competency at the local level. MEP informed the Board that it has conducted numerous surveys to confirm the branding strategy. Most clients support making transformational services available on a local level; indeed, nearly one half of all clients surveyed have wanted three or more services from their local MEP center, a testament to the high levels of trust and value they place in those centers. As this trust has grown, clients increasingly look beyond point solutions to find holistic business solutions. Since they traditionally look to their local MEP center for guidance and assistance, the next step naturally is to provide them with the type of solutions they seek.

The Integration Pilot Program, which is developing a set of integrated standards through which centers can voluntarily participate in an integrated delivery system, produced a set of recommendations, presented to the Board at the January meeting:

- Adopt a "strategic partnership" business model as the mode of membership in this integration endeavor.
- Select an initial product line to focus the development and delivery of a consistent transformational service and brand it as a national service.
- Brand = Strategic Partnership + Transformation Services
- Develop and implement standards that will build the partnership and build equity in the brand.
- Recognize it will probably take a year to implement the standards, and build a knowledge management system to support the marketing, sales, training, and delivery processes related to branded products.
- Move to subsequent product line only when ready.

MEP reassured the Board of the centers' ability to provide transformational services, any given business service could be found within the MEP network, if not all at each center. The Board was informed that as the brand prepares for launch, MEP is training and placing people capable of seeing the entire system at the national level who will be able to leverage the necessary expertise to provide a "complete" solution set. The greatest goal of the brand is to transfer the centers' local identity to a national identity, further positioning MEP as the foremost manufacturing resource in the nation.

SUPPLY CHAIN

Large original equipment manufacturers (OEMs) are looking for help in dealing with their supply chains. The communication link from the large OEM to the smallest supplier is weak. One of the goals of MEP's Supply Chain Initiative is to educate the market place about the importance of supply chains and how to improve their communications. In the past, the Board recognized the need for addressing supply chain issues, and tasked MEP to discover specific activities in the field to address.

The growing demand for the development of MEP-delivered supply chain solutions continues to drive MEP to partner with a number of MEP affiliates, OEMs, and vendors. In January, MEP announced a pilot to provide training and implementation of Powerway™ software to small manufacturers in the DaimlerChrysler supply chain. Powerway developed browser-based Advanced Product Quality Planning (APQP) and Production Part Approval Process (PPAP) software for the automotive industry. Following the rollout to first tier suppliers, a lower-tier solution will be developed and a pilot project

among lower-tier suppliers will be conducted. From this pilot MEP plans to develop a nationwide supply chain program designed to provide customized training and implementation services, delivered by local MEP affiliates.

Projects pending in January include the development and implementation of a Lean initiative within the DaimlerChrysler supply chain, and eBusiness and Lean training to wood products manufacturers in cooperation with the Tennessee Valley Authority. MEP is planning a minority business initiative to take a local pilot and roll it out nationally through the MEP network of centers to expand OEM involvement with minority-owned SMEs.

A DuPont initiative gives 27 centers the opportunity to expand the capacity of 300 small DuPont fabricators through MEP-led continuous improvement programs. Since January 2001, MEP has collaborated to assist the national network of DuPont Corian™ distributors improve the productivity of local firms producing Corian home and business products. The partners have developed guidance for working with this network. MEP centers also have the opportunity to participate in DuPont's School for Industrial Fabrication. During the

months of April and May, select MEP center representatives met with local distributors to begin identifying projects. Several projects are already underway with the expectation of more to come.

In May, MEP announced that it has engaged in discussions with Saturn to initiate an environmentally focused supplier development project for their smaller manufacturing suppliers. Saturn seeks to improve environmental performance throughout their small manufacturer base supplier network. MEP seeks to provide methods for achieving this goal and be an integral part of providing the required services. Six-to-seven pilot events took place in the summer of 2001.

In the last half of the year, MEP plans to bring its supply chain opportunities into a larger strategy to efficiently deploy center solution delivery capabilities on a national scale. A National Account marketing effort that gains access to new and non-traditional SME clients can reduce the cost of MEP client acquisition and solution development. SME networks to be targeted include multi-facility companies, professional organizations, trade associations, and OEM customers like Corian™ fabricators and OEM suppliers like the Saturn supply chain. In all cases, the MEP focus is on most effectively serving the requirements of the SMEs by gaining access to them through the targeted network.

Based upon experience to date, MEP determined that its involvement yields significant returns for the

national system. The Corian project is demonstrating the power of knowledge sharing when field representatives can access coordinated project experience across centers. Project cost sharing, negotiated at the national level with DuPont, is making production technology affordable to a wider range of fabricators and reducing the MEP centers' cost of impact generation. A National Accounts effort that presents MEP capabilities to many companies across the supply chain with one voice is enhancing system credibility. A recent presentation to Robert Boshe Corporation yielded center access to minority owned small manufacturers and more qualified minority owned suppliers to industry.

MEP UNIVERSITY

MEP University, founded in 1999, is a response to the need for consistent, system-wide training that can be disseminated throughout the system. This initiative increases the capabilities of MEP manufacturing specialists by helping them gather knowledge and skills that can be applied to help firms hone their competitive edge.

MEP University provides training in the areas of consulting, lean, and strategic management. MEP informed the Board that it is currently participating in an on-going planning process, begun at the beginning of the 2001 fiscal year, designed to support the development of a strategy needed to move MEP University forward to more effectively meet the educational needs of the MEP system. The process addresses how the virtual training will support branded product delivery activities. The Board also heard plans to offer staff certification around specific product lines.

In May, MEP updated the Board on MEP University's successes, reporting a total of 48 delivered training events that included the participation of 600 individuals. MEP noted that the vast majority of the training events are lean-based, indicating the continued popularity and relevance of Lean Manufacturing among America's small manufacturers. MEP then notified the Board that the focus of MEP University for the remainder of the fiscal year would be delivering course support necessary for the 360vu brand deployment. The premier course offering in this initiative is Professional Business Advisor (PBA) training, Parts 1 and 2.

As of September, the University had delivered 307 training events to approximately 700 participants. MEP reported the delivery of four sessions of PBA training Part 1, and two sessions of Part 2. MEP University exceeded its goal of 100 trained PBAs by the end of the 2001 calendar year.

In addition to the current training curriculum, MEP University is pleased to announce another activity. As part of MEP University's connection to the 360vu branding initiative, it made the decision to convert all existing courses to the brands standards and adopt a holistic approach to working with clients.

360VU

The Board devoted a significant portion of its May meeting to discussion of MEP marketing activities, specifically the newly developed 360vu branding initiative, as per its resolution at the January meeting.

OVERVIEW AND UPDATE

MEP presented the 360vu brand as a means by which it can use its leverage to lead the system rather than simply manage it. The 360vu program is the test of a unique hypothesis: not that manufacturing extension works, which is now a given, but that it can work more effectively as a national system rather than a series of local efforts. MEP anticipates significant improvements in nationwide marketing strategy over the coming year, but acknowledges that many centers will find the accommodations they are required to make to be difficult. In spite of this, as of December 87 percent of the centers had formally declared their intention to participate in the brand, and response to the initiative in general has been overwhelmingly positive.

MEP's strategy uses the foundations it has built to launch a set of products and services specifically aimed at clients who are ready to go to the next level of organizational effectiveness. MEP's vision for 360vu is to make it a national strategic management product line of services for small manufacturers. According to market studies, demand indicates that this is the right time to make such products

available. For example, standards implementation is now carried out on an enterprise-wide level, not on the shop floor. MEP wants to become the premier provider for transformational services by adding the 360vu product package to services centers already offer.

Five Brand Equity Teams (BETs) have been formed to support the 360vu brand: Market Research, Sales & Marketing, Product Development, Knowledge Management, and Training. At the meeting, MEP announced the roster of eight directors who will provide leadership in the brand's first year. Four of the eight joined the roster from the original team that developed the initial integration standards, a move executed by design.

It was pointed out that while MEP fully intends to reach its goal of 100 percent coverage for the brand, there would be an inevitable transition period as the centers respond to the requirements and prepare for implementation. For many centers, the Professional Business Advisors (PBAs) program presents the largest barrier to becoming certified to carry the new

brand. Through the efforts of MEP University, training sessions are scheduled around the country, and over 140 PBAs were enrolled for training by the end of 2001. In addition to the MEP University, the PBAs have the support of a peer group network; the first group of fully trained PBAs will then assume a mentoring role within the organization for future generations. In response to the Board's queries about market research to support the acceptability of the PBA program, MEP pointed out that it is currently conducting message testing and marketing research around the country, and conducting individual interviews with CEOs of companies within the target market. MEP plans to use those results to determine its approach to placing branded products and services.

MEP assured the Board that the 360vu brand serves as a differentiator between those centers that strive for excellence and those that are content to meet only the minimum requirements for maintaining government funding. As a result, the brand creates an aspiration among the centers to pursue higher standards of performance by standardizing, capturing economies of scale and knowledge, and moving to high performance. Initially, the brand's message is aimed more at the centers themselves than at their customers, though as they gradually become certified, this situation will change.

The Board heard the next steps to brand implementation, and viewed possible design options that give visual identity to the brand. centers will be given the choice of incorporating the brand into their own designs or working with the brand marketing team on a complete redesign of their materials.

360VU MARKET RESEARCH ACTIVITIES

The Board also heard about MEP's plans for 360vu brand market research plans and current activities. MEP feels that the brand provides the motivation and incentive to leverage the breadth of the MEP network to gather and distill market-based information. As designed, the brand market research project reduces duplication of effort across the network, as analysis shows that many local trends are similar and can be interpreted on a national level. The project intends to maximize economies of scale in market data collection and analysis.

The Board was presented with an outline of the three categories of activity to date:

- Packaging current 360vu products and services.
- Exploring additional products and services for development.
- Information mining to build 360vu and MEP brand equity.

In addition to a brief summary of products and services under consideration, the Board heard about the information collection and analysis approaches used in the 360vu market research project. MEP is currently pursuing methods of continuous input from various tracking instruments, and the possibility of special custom research. These efforts maximize MEP's efficient capture, synthesis, and return of data, feeding it back to centers in a timely and meaningful manner.

The Board heard that the current market research team met to solidify an action plan and begin implementing initial approaches, and was asked

to recommend appropriate organizations and associations to approach in solidifying the marketing data.

MEP hopes to escalate its new method of data collection to a national statistical base for information on manufacturing, eventually becoming the "voice" of small manufacturing in the United States, a goal the Board soundly endorsed.

eBUSINESS

MEP developed an *eBusiness* project, modeled after 1999's Y2K initiative, based on a perceived need for *eBusiness* assistance in the marketplace. The *eBusiness* project progressed through 2000. At the January meeting, MEP updated the Board on progress through the end of the year.

The Opportunities product launched and all MEP centers subsequently received copies. Feedback on the product compiled and presented to the Board at the January 2001 meeting revealed a limitation in the tool. It is programmed for and uses a run-time version of Microsoft Access 2000, which conflicts with earlier versions of Access that many centers and manufacturers use. The project team announced plans to correct the limitation and release the corrected version of the tool in February 2001.

Another component of the *eBusiness* project—the *eBusiness* Security Workshop—launched in October 2000 at the joint technical working group meetings. The Workshop provides a framework for helping MEP field staff and companies understand and address information and physical security concepts associated with

doing business in the virtual market. In response to demand from center staff, the project team initiated work on revising the NET Knowledge 101 web-based course in order to put it on the MEP public web site, where it will be directly accessible to companies. Additionally, the project team posted a prototype of the *eBusiness* Engagement Methodology to the Source for centers website, for use by field staff. The content for this module continues to evolve as more pieces are developed and matured, and field staff complete more projects from which to draw material.

To begin the 2001 calendar year, the *eBusiness* project team completed a planning exercise for the fiscal year 2001, and cooperated with centers to identify nine additional workshops and two additional tools for acquisition or development. As of January, the team planned to migrate all *eBusiness* products and training to the 360vu brand standards.

Effective April 2001, the *eBusiness* Solutions Center expanded to support all of MEP's products and services, including *eBusiness*, Lean, and PBA. The project team announced the launch of Net Knowledge Basics, presented at the January meeting, on the public MEP website. Plans to implement the migration of additional workshops and products to the 360vu brand continued, and the team proudly reported the development of four workshops (*eStrategy* Fundamentals, *eBusiness* Implementation, International *e*, and *eValue* Chain), and one new product (*eSecurity*) for the brand.

The *eBusiness* Solutions Center also implemented an *eBusiness* Demonstration/Testbed activity, which includes the development of two *eBusiness* demonstrations. One depicts the process of business transactions from the initial request for quote through concurrent product and process design to the point of manufacturing the product. The second demonstration, blending *eBusiness* and Lean Manufacturing principles, shows how product information flows through the manufacturing plant and suppliers to produce a finished product. The Solutions Center also revealed that it is making

progress toward a Cooperative Research and Development Agreement (CRADA) with Microsoft Great Plains Business Solutions to provide assistance in demonstrating *eBusiness* solutions for small manufacturers.

Since the last meeting, significant changes have occurred to the 360vu brand and, subsequently, to the *eBusiness* project. Due in part to a reduction in funding for the 2001 fiscal year, the 360vu brand policy team decided that *eBusiness* is not one of the initial requirements for carrying the brand. As such, *eBusiness* is no longer emphasized as a separate product line and the project team is making plans to incorporate the elements into other appropriate project categories. All projects that are complete will be distributed to the MEP network, and projects only partially completed have been stopped. The exception is the *eScan* Security

Assessment tool, which was released in October 2001. Significant effort was put into the final development of this tool to help respond to SME security concerns after the September 11th tragedy. Several training sessions were held for the MEP network on the use and implementation of the tool. MEP is currently developing a public version of the tool that will be made available to all small businesses. *eBusiness* products currently available include:

- *eBusiness* Strategic Opportunities Workshop
- *eBusiness* Fundamentals Workshop
- *eSecurity* Workshop
- *eScan* Opportunities Assessment Tool (revised version)
- *eScan* Readiness Assessment Tool

The concepts originally designed for other *eBusiness* workshops will be incorporated into other 360vu workshops as they are developed.

MEP/ADVANCED TECHNOLOGY PROGRAM TECHNOLOGY DIFFUSION COLLABORATION PROJECT

Launched in summer 1999, the MEP/Advanced Technology Program (ATP) Technology Diffusion Collaboration project began as a pilot with participation from seven centers. The goal was to identify critical steps, key success factors, and obstacles to the effective diffusion of advanced technologies to small manufacturers. An additional goal was to determine how the MEP system could leverage its resources to support this diffusion and help report the results of the pilot. Once these goals had been accomplished, the project team would then develop a plan for diffusing the targeted technology to small manufacturers. ATP provided the funding—approximately \$200,000—and is focusing only on diffusing advanced technologies. The pilot does not market or support ATP or ATP-funded companies.

In the first quarter of the 2001 fiscal year, the project team approved diffusion plans for three technologies: diamond coating of plastic molds, application of ultrasonic transducer technology, and 3-D high speed imaging. The projects proved conclusively that MEP/ATP collaboration is fully feasible. In February 2001, the project

teams met to discuss the status of implementing the diffusion plans, including the identification of potential SME diffusion candidates. Since then, the teams have made considerable progress towards effective diffusion to selected SMEs.

The team responsible for diffusing a new 3-D imaging technology has concluded an agreement between a manufacturer and the developer to apply it to hearing aid production. In response to the early success of this agreement, three additional manufacturers have expressed strong interest in continuing to work with the developer to apply this same technology to their own operations.

The team responsible for diffusing a technology to diamond-coat plastic injection molds is currently conducting 12 tests of the technology at ten different companies, with five additional tests currently in proposal stages. Based on the test results, the team plans to identify those applicants warranting diffusion of this service throughout the MEP system.

The third team, responsible for the study of ultrasonic treatment technology, is temporarily hampered by the need to scale the technology for commercial use. However, the developer committed to working with the team on an applied food processing demonstration aimed at significant destruction of e-coli bacteria during meat processing operations. The team planned a demonstration of the

technology at the Iowa State University meat processing facility. The team also identified a wastewater treatment application with a private company, and arranged for the technology's developer to work with them to determine its feasibility.

As the project wound to a close, each diffusion team prepared a report to be submitted to the project management team for review. Ongoing field interviews with project team members culminated in a final report, presented at the National Conference in November 2001. Preliminary findings included lessons learned regarding the benefits and drawbacks of a collaborative diffusion effort. The preliminary results indicated that technology diffusion is a difficult process, due to limitations in potential partnerships, dynamics of the ever-changing business market, and complexity and cost of projects in order to realize a substantial benefit. However, the projects did find that technology diffusion could lead to involvement in SME strategic planning and requests for other services.

SUCCESS STORIES

In 2001, MEP centers assisted over 21,000 manufacturers in areas including business systems, human resource management, process improvement and market development. There are thousands of success stories with hundreds already documented. Following is a very small sample of successes at only a few centers. If you are interested in learning more about the work centers do for a particular state, please visit our website at www.mep.nist.gov.

TEXAS

LASER TECH TRIPLES CAPACITY OVER ONE WEEKEND

Laser Tech, located in El Paso, Texas, is a remanufacturer of laser printer cartridges with less than 20 employees. Laser Tech received an unusually large order that exceeded its current capacity and the company struggled with the challenge of filling that order using its current workforce and physical plant without compromising existing business. For help, Laser Tech turned to the Texas Manufacturing Assistance Center (TMAC), a NIST MEP network affiliate.

TMAC's manufacturing specialist suggested that Laser Tech consider implementing lean manufacturing techniques and submitted a proposal to begin work. Laser Tech accepted the proposal and TMAC trained its employees utilizing an innovative production simulation workshop. The consultants gathered and quantified possible productivity gains, balanced the work, and redesigned the product flow to accommodate cellular concepts. The implementation blitz occurred over a single weekend and Laser Tech experienced immediate

and obvious productivity gains. What used to take three people four days to produce can now be produced by four people in a single day. In

“The change to lean manufacturing techniques and cellular manufacturing, introduced by the Texas Manufacturing Assistance Center, has given us the confidence to handle large orders with reduced lead times.”

*Judy Wendt, President
Laser Tech*

addition, the increased productivity has motivated employees to identify additional areas of improvement. Laser Tech not only serviced the large order without impacting existing business, but also expanded its business with its current facility and workforce. Even as it increased its level of business, the firm reduced lead-time to fill new orders.

TEXAS MANUFACTURING ASSISTANCE CENTER (TMAC) Serving firms throughout Texas with fifteen field offices. TMAC is a partnership of: The Texas Engineering Extension Service, Texas A&M University System; The Automation & Robotics Research Institute, University of Texas at Arlington; The Institute for Manufacturing & Materials Management, University of Texas at El Paso; the University of Houston; Texas Tech University; The University of Texas Pan American; and Southwest Research Institute.

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CALIFORNIA

REPLACEMENT PARTS INDUSTRIES IS ISO SAVVY

Replacement Parts Industries, Inc. (RPI), located in Chatsworth, California, is a family-owned business employing 22 people with annual sales of \$3.5 million. The company specializes in the design and sale of after-market parts used in the repair and maintenance of hospital, physician, dental, veterinary and laboratory equipment. With over 1900 parts in its catalog, RPI is a true alternate source to the original equipment manufacturer.

The RPI management team sought a mechanism to integrate a quality system into their company. The company wanted to establish common guidelines for training and a baseline for improvement, recognizing the market potential of becoming an ISO 9001 registered company, especially with respect to increasing its international sales. RPI contacted the California Manufacturing Technology Center (CMTC), a NIST MEP network affiliate, and CMTC's ISO 900 Implementation Group provided a way for RPI to become ISO 9001 registered at an affordable cost.

After completing the ISO 9000 Implementation Group's recommendations, RPI's return on investment increased to 342 percent, annual sales increased by 6 percent, and scrap costs decreased by \$4,000 (a 20 percent decrease from 1998 to 2000).

Pursuing ISO 9001 has already paid for itself, and we could not have done it without the support of the California Manufacturing Technology Center. The classroom instruction, hands-on learning, and in-house consulting—especially as we prepared for the certification audit—were invaluable, and yet quite affordable.”

*Ira Lapides, President & CEO
Replacement Parts Industries, Inc.*

ISO 9000 not only reduced production problems, but enabled RPI to create two new jobs from 1998 to 2000, a 9 percent increase. The company projects an increase in international sales of 10 percent in 2001.

CALIFORNIA MANUFACTURING TECHNOLOGY CENTER (CMTC)

Serving the five-county Los Angeles basin, the San Joaquin Valley and Greater Sacramento, through seven regional centers. Affiliated with the El Camino Community College District, the California Trade and Commerce Agency, the California Community Colleges, and the California Employment Training Panel.

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SUCCESS STORIES

MISSOURI

DABRYAN COACH BUILDERS IMPLEMENTS LEAN MANUFACTURING CONCEPTS

DaBryan Coach Builders, Inc. is a leader in the limousine industry, employing approximately 90 craftsmen who manufacture a complete line of limousines on Lincoln and Cadillac chassis, incorporating traditional hardwoods and leather—as well as the latest technology in audio and video electronics—into its product designs.

DaBryan Coach Builder's combination of current production practices and layout of the plant limited production capacity. Due to the diverse product differences offered between chassis manufacturers, DaBryan required two assembly lines to assemble the limousines. Running two lines necessitated extra floor space, more labor, and duplication of tools and materials, which caused longer lead times. In an effort to streamline production operations, the company contacted Missouri Enterprise, a NIST MEP network affiliate, for help implementing lean manufacturing principles into its facility.

First, Missouri Enterprise provided the NIST MEP Lean Manufacturing 101 training course to all DaBryan employees, addressing the basic concepts of lean manufacturing. The

hands-on “train and do” approach allows students to experience their lessons through live simulation. Next, Missouri Enterprise led a value stream mapping exercise to create a complete view of the manufacturing process. The company made decisions about what to do to improve the process flows, eliminate wasted activities, and add value in the manufacturing process. Based on this exercise

“Participation in the NIST MEP Lean Manufacturing 101 and Value Stream Mapping training workshops presented to us a fresh look at our processes and inventories and helped us implement changes into our organization, allowing us to be more flexible and responsive to customer's needs. Additionally, Missouri Enterprise's approach to the workshops and consulting project created excitement for change within our employee group, allowing us to accomplish our goals.”

*Dan Mitchell, President
DaBryan Coach Builders, Inc.*

and its newly acquired lean manufacturing skills, DaBryan began aligning production processes and properly distributing resources to encourage material flow at its facility. Within five months, the company reduced work-in-process inventory by 40 percent—initially reducing inventory costs by \$2 million—and reduced factory throughput time by 25 percent. Furthermore, DaBryan improved productivity by approximately 20 percent. The company anticipates an annual cost reduction of \$625,000.

MISSOURI ENTERPRISE BUSINESS ASSISTANCE CENTER Serving Missouri through eight regional offices.

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SOUTH CAROLINA

THE LEANER JBE GETS, THE BIGGER IT GROWS

JBE, Inc., located in Hartsville, South Carolina, is a metal finishing business employing 27 people. In 1997, JBE was considering purchasing an 18,000-square-foot facility and consulted the South Carolina Manufacturing Extension Partnership (SCMEP), a NIST MEP network affiliate, for expert advice on plant layout and costing recommendations. Ellison notes that SCMEPs field and technical staff significantly influenced his decision to purchase the facility in 1998.

Based on this past success, JBE now relies on SCMEP to help identify expanded manufacturing opportunities

“I can’t say where JBE would be without the South Carolina Manufacturing Extension Partnership. With SCMEP, we have developed a business plan for a lean manufacturing operation, created jobs, brought in more business, reduced our lead times, improved our scrap rates, and received the ISO stamp of approval—all of which has made us more profitable.”

*Jerry Ellison, Owner
JBE, Inc.*

based on improvements in overall capability and capacity. In 1999, JBE had an opportunity to become a headlamp assembly supplier to Honda of South Carolina, and again contacted SCMEP for advice. SCMEP conducted a Competitiveness Review (CR) to determine the most critical company need. The CR showed that while JBE had good systems in place for its existing business, neither its staff nor its assembly production layout were ready to effectively manage the Honda contract.

To ready JBE’s facility and staff for the bid on the Honda contract, SCMEP assisted JBE with a group grant from the Minority Business Development Agency. The grant monies enabled JBE to hire consultants to help redesign the layout of the plant for more effective assembly line production and develop the necessary manufacturing standards. JBE took part in a model OEM Supply Chain Intervention Program, which emphasized improvements in product quality, delivery, and cost. The program emphasized the importance of capability and capacity improvements to the procurement process.

JBE was awarded the Honda contract and due to its success, the company was asked to bid on manufacturing automotive assemblies for Honda’s new facility in Alabama. The company has implemented an MRP system for shop floor/inventory control, and is now one of the first ISO 9000 certified minority manufacturers in South

Carolina. The company added 20 new employees and projects gross annual sales of \$12 to \$15 million this year. Furthermore, all managers and associates have completed Lean 101 training.

**SOUTH CAROLINA
MANUFACTURING EXTENSION
PARTNERSHIP (SCMEP)** Serving firms throughout South Carolina through five field offices and six technical college and university partnerships. Affiliated with the University of South Carolina and operated independently as a non-profit organization.

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PENNSYLVANIA

AGR INTERNATIONAL USES STAGE-GATE™ PROCESS TO GENERATE PRODUCT SUCCESS

AGR International, headquartered in Butler, Pennsylvania, manufactures quality control equipment for the glass, plastic container, and pharmaceutical industries. The company, established in 1962, has annual sales in excess of \$20 million and employs 190 people.

AGR wanted to be able to better gauge resource allocations and budgeting to streamline its product development process. The Southwestern Pennsylvania Industrial Resource Center (SPIRC), a NIST MEP network affiliate, reviewed AGR's existing product development processes and recommended customizing Stage-Gate™, an off-the-shelf new product development process. With Stage-Gate, companies take new products through five stages and five "gates," or decision points, organizing and objectifying the decision-making process within a company. Companies are encouraged to tailor the process to their own specifications. For AGR, that included renaming it TREAD, an acronym for The Right Environment, Attitude and Direction. Widespread input and Stage-Gate training led to universal employee buy-in.

After completing one full new product development cycle with Stage-Gate, AGR has seen an improvement in its ability to eliminate projects not

"We are very satisfied with services that the Southwestern Pennsylvania Industrial Resource Center provided. Stage-Gate was more than a bunch of theory —SPIRC knew how to make it practical, and how to make it work for our company. It has become a mantra for us."

*Ron Puvak, New Product
Marketing Director
AGR International*

up to standard. In the first year, three projects that might have received funds were shelved because the process revealed an unacceptable rate of return. With complete workforce buy-in, AGR has become more objective and efficient in its decision making process. The company has reduced its timeframe for new product development decisions from several months to a few weeks, leading, in at least one project, to a reduced cost of 20 percent. AGR has embraced the methodology and applied it to other areas, such as potential outside acquisitions.

SOUTHWESTERN INDUSTRIAL RESOURCE CENTER (SPIRC)

By focusing on a company's specific needs and goals, SPIRC provides customized solutions that lead to measurable, positive results. SPIRC has the expertise to identify areas that will benefit from change, recommend an improvement strategy, and then implement the action plan. SPIRC's staff of industry-experienced consultants help manufacturers increase sales, develop new products, improve product quality, develop employee performance and reduce costs.

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